

ASAP.

Work Order ID 128324

128324

Page 1

Thursday, January 15, 2015 8:49:45 AM

Item ID: D4102-1

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Shim

Start Date: 1/16/15 Start Qty: 15.00 *15*

Cust Item ID:

Required Date: 1/20/15 Req'd Qty: 15.00 *15*

Customer:

Reference:

Approvals: Process Plan: [Signature] Date: 15-1-15 Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D4102	B

100

Cut blanks as per folio

0.00

100

Bandsaw

Memo

0.00

Jeaspa Bandsaw

4.950" long

SCRAP

15

Ø

DAS
20
9-89

15-01-16

110

110

HAAS 1

Memo

0.00

HAAS CNC vertical machine #1

MILL AS PER DWG AND FOLIO FA945

FOLIO REV: AA

DWG REV: 6

DEBURR

15

DAS
20
9-89

15-01-16

DAS
44
9-89

15/01/17

P10

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: 8/2/13 Date: 15/12/13Work Order update only ☐

Work Order: <u>128324</u>	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS			
Part No. <u>D4102-1</u>		Skid-tube ☐	Crosstube ☐	Water Jet ☐	Engineering ☐
NCR No. <u>15-4571</u>		Machining ☒	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐
		Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐
		Large Fab ☐	Composite ☐	Supplier ☐	

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design	15.01.14	110	1	POCKET DIM 0.120 IS ACTUALLY 0.113 Δ 0.017" R.C. offset too low	A.P. 15.01.14	ACCEPTABLE AS IS NO EFFECT ON STRENGTH OR FUNCTION OF PART	A.P. 15.01.14	DAS 44 9-89 15/01/14	DAS 9 9-89 15-01-14
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup ☒									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence	☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge	☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other
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Work Order ID 128324

128324

Page 2

Thursday, January 15, 2015 8:49:45 AM

Item ID: D4102-1 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Shim
 Start Date: 1/16/15 Start Qty: 15.00 *15* Cust Item ID:
 Required Date: 1/20/15 Req'd Qty: 15.00 *15* Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start *NR1*
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	QC2- Inspect parts off machine FAI/FAIB	0.00							DAS
120						15			20
QC	Memo	0.00							9-89 15-01-16
Quality Control									<i>[Signature]</i>
130	QC8- Inspect parts - second check	0.00							
130						15	0		
QC	Memo	0.00							
Quality Control									
140	Chemical Conversion Coat per QSI005 4.1	0.00							
140						15		15-1-21	<i>[Signature]</i>
HandFinish	Memo	0.00							
Hand Finishing									<i>[Signature]</i>

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Crosstube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐
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Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence	☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge ☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other
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Work Order ID 128324

Thursday, January 15, 2015 8:49:45 AM

128324

Page 3

Item ID: D4102-1

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Shim

Start Date: 1/16/15

Start Qty: 15.00

15

Cust Item ID:

Required Date: 1/20/15

Req'd Qty: 15.00

15

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start ***NR1***

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

150

QC - Inspect Part Finish

0.00

150

QC

Memo

0.00

Quality Control

160

Identify as per dwg & Stock Location: _____

0.00

160

Packaging

Memo

0.00

Packaging

170

QC21- Final Inspection - Work Order Release

0.00

170

QC

Memo

0.00

Quality Control

DISCARD
1/15-1-28

DQA:

Date: 15/03/15



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed:

Date: 15/2/13

Work Order update only ☐

Work Order: <u>128324</u>	DISPOSITION Rework ☐ Scrap ☒ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS			
Part No. <u>D4102-1</u>		Skid-tube ☐	Crosstube ☐	Water Jet ☐	Engineering ☐
NCR No. <u>15-4573</u>		Machining ☒	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐
		Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐
		Large Fab ☐	Composite ☐	Supplier ☐	

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence	☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge	☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other
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Picklist Print

Page 1

Thursday, January 15, 2015 8:49:50 AM

Work Order ID: 128324

128324

Parent Item: D4102-1

D4102-1

Parent Item Name: Shim

Start Date: 1/16/15

Required Date: 1/20/15

Start Qty: 15.00

Required Qty: 15.00

Comments: IPP REV:A NEW ISSUE 10-07-05 JLM VERIFIED BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

M6061T6B0.250X04.00
0

Purchased

No

100

f

7.8300

0.42

7

M6061T6B0 250X04 000

6061-T6 Bar .250 x 4.00

**

6.325'

DAS

20

9-89

15-01-16

Location

Loc Qty

Loc Code

MAT001

7.83

m127464

7.83

6.325'

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube ☐</td> <td>Crosstube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>	Skid-tube ☐	Crosstube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐	
Skid-tube ☐	Crosstube ☐	Water Jet ☐	Engineering ☐															
Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐															
Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐															
Large Fab ☐	Composite ☐	Supplier ☐																

Root Cause	Date	Step	Qty	Description of work order update or non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Design									
Doc/Data									
Equip/Tooling									
Handling/Pre									
Material									
Operator									
Offset/Setup									
Process									
Supplier									
Training									
Transport									
Unapproved									

FAULT CATEGORY

Landing Gear ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Inspection Strip in Tube ☐ Marks/Chatter ☐ Turning Sequence ☐ Wave/Twist in Tube	General ☐ Bend ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Burrs ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Drawing ☐ Drill Holes ☐ Finish ☐ Fit/Function	☐ Folio/Program ☐ Grain ☐ Hardware ☐ Inspection Incomplete/Unqualified ☐ Instructions Incomplete/Unclear ☐ Misaligned/off center ☐ Mislabeled ☐ Misread ☐ Off-set ☐ Out of Calibration ☐ Out of Sequence	☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Positioned Wrong ☐ Power Loss/Surge ☐ Pressure/Forced ☐ Set-up ☐ Temperature/Cure ☐ Weld ☐ Wrong Stock Pulled ☐ Other
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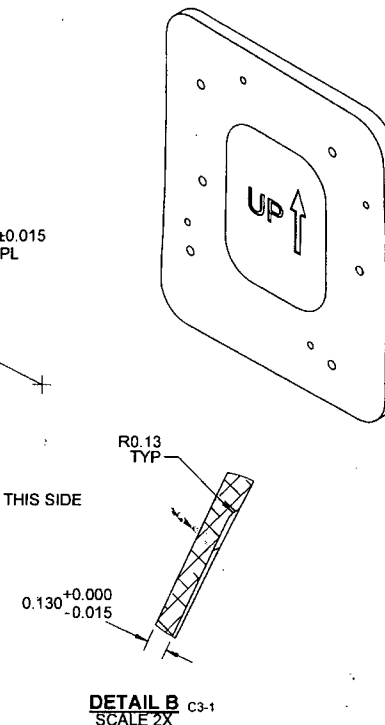
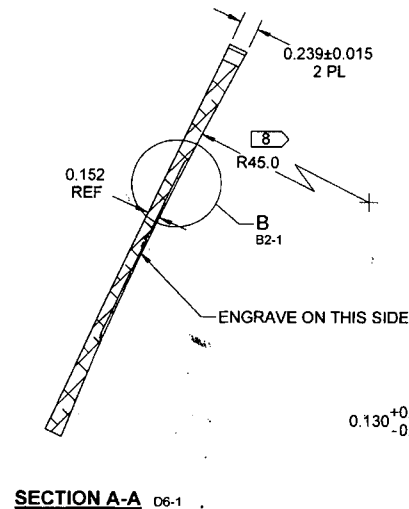
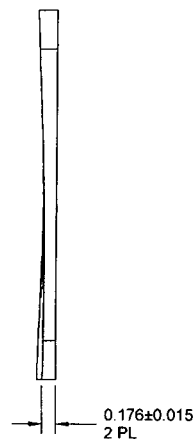
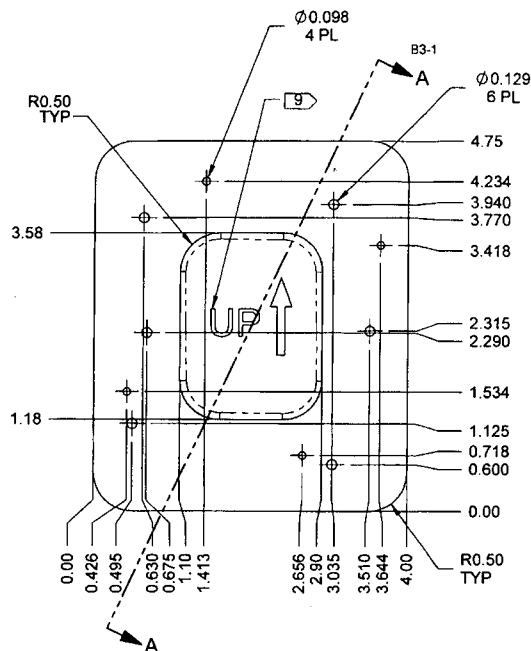
DART AEROSPACE LTD		Work Order:	128324
Description: Shim		Part Number:	D4102-1
Inspection Dwg: D4102 Rev: B		Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø .098	+0.004/-0.001	.099	✓		gauge	Pins
Ø .129	+0.005/-0.001	.131	✓		"	
4.75	+/- .030	4.748	✓		SLO8	Vern
4.00	+/- .030	3.998	✓			
.600	+/- .010	.597	✓			
3.770	+/- .010	3.767	✓			
3.035	+/- .010	3.032	✓			
.630	+/- .010	.627	✓			
2.290	+/- .010					
2.315	+/- .010					
.718	+/- .010	.716	✓			
4.234	+/- .010	4.232	✓			
2.656	+/- .010	2.653	✓			
1.413	+/- .010	1.410	✓			
R.50	+/- .030	.500	✓		Rad gauge	
1.18	+/- .030	1.210	✓			
3.58	+/- .030	3.550	✓			
1.10	+/- .030	1.140	✓			
2.90	+/- .030	2.870	✓			
.176	+/- .015	.168	✓			
.239	+/- .015	.233	✓			
R.13	+/- .030	.125	✓		Rad gauge	
.130	+0.0/-0.015	.125	✓		↓	

Measured by: DAS 20	Audited by: <i>[Signature]</i>	Preliminary Approval:
Date: 15-01-16	Date: 15/01/19	Date:

Rev	Date	Change	Revised by	Approved
E	10.04.14	Added preliminary approval	KJ	



D4102-1 SHIM



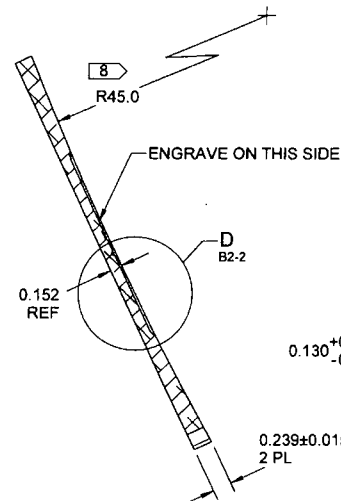
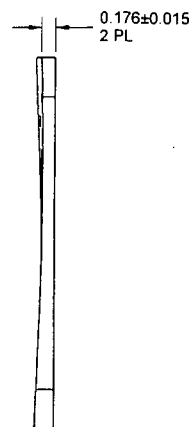
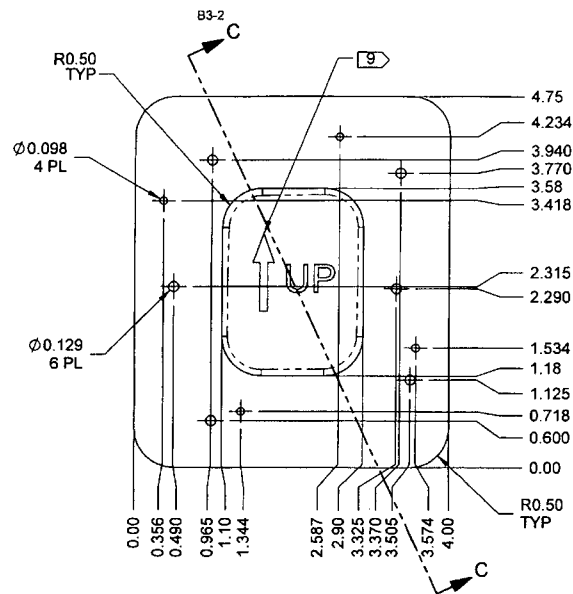
NOTES:

- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR
QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
PER DART SPEC. M6061T6B
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4102-1" & B/N USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 0.30 lbs
- 8) SURFACE FINISH MINIMUM 250 MICROINCH
- 9) ENGRAVE "UP & ARROW" TO A DEPTH OF MAXIMUM 0.020 IN THIS LOCATION WITH A TOOL TIP RADIUS OF 0.063

Handwritten: 15-T-15
128324

RELEASED
2010-08-23
JNP

B	RE-DESIGN D4102-1/2/3 (ZN B4-1, B4-2, B4-3)	RF	10.08.06
A	NEW ISSUE	RF	10.06.07
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D4102 REV. B SHEET 1 OF 3 TITLE SHIM SCALE NTS COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DRAWN	RF		
CHECKED	<i>[Signature]</i>		
MFG. APPR.	<i>[Signature]</i>		
DE APPR.	<i>[Signature]</i>		
DATE	10.08.06		



R0.13
TYP

DETAIL D C3-2
SCALE 2X

D4102-2 SHIM



NOTES:

- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR
QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
PER DART SPEC. M6061T6B
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4102-2" & B/N USING FINE POINT PERMANENT INK MARKER
- 7) WEIGHT: 0.30 lbs
- 8) SURFACE FINISH MINIMUM 250 MICROINCH
- 9) ENGRAVE "UP & ARROW" TO A DEPTH OF MAXIMUM 0.020 IN THIS LOCATION WITH A TOOL TIP RADIUS OF 0.063

RELEASED
2010-08-23

DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D4102	SHEET 2 OF 3
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	SHIM	NTS
DATE	10.08.06	COPYRIGHT © 2010 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

